EXECUTIVE SECRETARIAT

ROUTING SLIP

TO:		ACTION	INFO	DATE	INITIAL
1	DCI		X		
2	DDCI		X		
3	EXDIR				
4	D/ICS				
5	DDI		X		
6	DDA				
7	DDO				
8	DDS&T				
9	Chm/NIC				
10	GC				
11	IG				
12	Compt				
13	D/OLL				
14	D/PAO				
15	D/PERS				
16	VC/NIC		X		
17	D/OGI	X (attn [redacted]			
18	D/OSWR	X			
19	NIO/S&T	X			
20	C/TTAC		X		
21	C/ACIS		X		
22	ER				
	SUSPENSE	ASAP (Date)			

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Remarks To all: [redacted] OGI, was invited by Bill Martin to be CIA rep at this meeting. NIO/S&T and OSWR, however, are responsible components.

To 17, 18, 19: Please collaborate and provide comments to ES for passing to NSC. (Advance copies provided.)

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[redacted]

15 Nov 85
Date

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3637 (10-81)

SECRET

THE WHITE HOUSE
WASHINGTON

November 14, 1985

TO: Fusion Working Group

FR: William F. Martin WFM
Donald R. Fortier for

Attached please find a draft paper resulting from our meeting today. Please provide comments to me no later than 9 a.m., Friday, November 15.

Attachment

UNCLASSIFIED WHEN SEPARATED
FROM ATTACHMENT.

B-223
C-128

SECRET

SECRET

FACT SHEET

Multilateral Fusion Research Proposal

Background

-- The successful development of a fusion nuclear reactor would provide the world with a clean technology that could produce an inexhaustable energy supply. Fusion energy offers the potential for cost savings in energy production. However, the construction of commercially available reactors will require that capital and operating costs be competitive with alternative sources. For technical and cost reasons, fusion reactors may not be available commercially until late in the 21st century.

-- The Soviets have proposed that the U.S. and the U.S.S.R. head a multilateral organization to design, build, and operate the next generation experimental fusion reactor. The Soviets have asked that countries from Western and Eastern Europe as well as Japan and China be invited to participate and contribute to the project. The project will permit cost-sharing in building the next generation experimental reactor and the Soviets would be obliged to make a fair contribution of equipment, personnel and hard currency.

-- The USG now spends $385 million on magnetic fusion research. We have a small cooperative effort (less than $4 million) with the Soviets in scientific exchanges on fusion research.

-- Depending upon the degree of participation among the major industrial countries engaged in fusion research the U.S. contribution would be between $60 to $150 million per annum. The entire project will cost roughly $3 billion and take ten years to construct. Although other countries might be interested in sharing the burden associated with fusion research, we can expect caution given other U.S. requests for SDI and our historical difficulties in staying with long-run commitments for cooperative energy R&D.

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DECL: OADR

-- From the budget side, two points should be noted. First, USG's fusion program has decreased by 10 percent per year over the last two years. Until now neither the Administration nor Congress have considered this program to be a priority energy activity. Second, there is every reason to believe that other projects or certain aspects of domestic fusion research might be displaced if this effort were to proceed.

-- Proceeding with the Soviet fusion proposal might harm our efforts to gain political and budgetary support for SDI because of the following: (1) Support for SDI is fragile and the major Soviet critic of SDI (Ye. P. Velikhov) as well as other critics would point to fusion research as a peaceful alternative to SDI. Velikhov is the primary proponent of the Soviet fusion program. The Soviets could use our support for fusion research to further polarize the U.S. scientific community on SDI and bleed away Congressional support for SDI funding.

Technology Transfer and National Security Concerns

-- The Soviets will have access to a broad spectrum of high caliber U.S. and other Western scientists and engineers at a level not now available to them. The risk from elbow-to-elbow contact, particularly in the joint production of engineering design, will contribute to Soviet efforts to identify and acquire technical knowledge and specifications of allied controlled technology.

-- U.S. and allied participation in the project will be governed by COCOM regulations and in particular the "no exceptions" policy regarding the transfer of controlled technology to the Soviet Union. This policy has been strictly adhered to by the U.S. and the allies over the last five years. It should be noted that the net effect of adhering to the COCOM export control regime might be to deny the project the most recent and effective Western technologies and components in such key areas as computers, software, and diagnostic equipment.

-- If it were necessary to rely on a wide range of inferior technologies to construct the reactor, the

project could be delayed and/or realize poor research results. As a result, we can expect pressure from the scientific community or allied governments to seek exceptions to the COCOM export control regime. This would place the U.S. in a difficult position because we have taken the lead in getting the allies to adhere to a "no exceptions" policy on the transfer of controlled technology to the Soviet bloc.

-- In addition to COCOM regulations, we would be unable to permit Soviet Bloc access to any supercomputers located in the West even if they are required for the project. Such access would violate our recently approved (and confidential) agreement with Japan and Germany to attach safeguards governing the sale of and access to supercomputers by the Soviet Bloc. These restrictions could harm the pace at which the project would proceed.

-- Many technologies must be brought together and more fully developed to successfully complete the project. Some of these developments also are required to convert current advanced weapons concepts into usable hardware. For example, breakthroughs in fusion research are important for particle beam weapon development and a host of SDI applications. This project inadvertantly could assist the Soviet SDI program. (Attached is a list of fusion technologies required to advance the development of our SDI weapons system.)

Other Issues

-- Should we have a major political fallout with the Soviets sometime during the life of the project the USG might be forced to pull out of the project. Any gains from cooperative research would then be lost.

-- The USG might be subject to severe criticism from the scientific community that has supported Administration efforts to hold down spending on fusion research. Addressing these criticisms suggest that the project might only be justified if it were funded out of existing budgetary levels.

-- Given that hundreds of Western and Soviet physicists will participate in this project we may send the wrong signal to the Soviet scientific community that we have returned to business as usual. As recently as Nov. 8, 250 U.S. physicists asked the Soviets to release a number of Soviet fusion scientists.

TECHNOLOGY APPLICATIONS

Field of Study	General Benefit	Fusion Benefit	SDI Benefit
Material Science	- Surface Treatment	- Resistance to high discharge current erosion	- High Power Switches Rail Guns, Shielding
	- High Strength Alloys	- Magnetic field distribution of materials	- Lightweight, strong materials
	- Superconducting materials	- Magnets	- Energy storage
Power Conditioning (Capacitive/Inductive)	- Efficient energy storage	- High power Efficient generator	- Energy supplies for space and ground
Diagnostic Techniques	- Atomic Physics Spectroscopy Electric and magnetic field	- Understanding of underlying Physics	- Scientific Equipment, Hardware and Software
Computer Controls and Data Processing	- Better Hardware and Software	- Useful Operation	- Operational capabilities
Ion Beam Sources and Accelerators	- High power beam	- Plasma heating	- Neutral beam weapons Discriminator
Microwave Sources	- High power beam	- Plasma heating	- Radars countermeasures ECM Microwave Weapons
Plutonium Breeding Technology	- Plutonium supply	- Energy source	- Weapons grade material

WASHFAX RECEIPT

THE WHITE HOUSE

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Nov 14 6 32 PM '85

URGENT

MESSAGE NO. 985 CLASSIFICATION SECRET PAGES four

FROM WILLIAM MARTIN 456-2224

(NAME) (EXTENSION) (ROOM NUMBER)

MESSAGE DESCRIPTION FACT SHEET: FUSION RESEARCH PROPOSAL

LOG #:

TO (AGENCY)	DELIVER TO:	DEPT/ROOM NO.	EXTENSION
STATE	BRUNSON MCKINLEY (pass to Richard Smith; James Timbie & Michael Marks)		
DEFENSE	Col David Brown (pass to Steve Bryen and Phil Berman)		
ENERGY	WILLIAM VITALE (pass to Alvin Trievelpiere; George Bradley & Joe Salgado)		
CIA			

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REMARKS URGENT